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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,547	09/23/2003	Moray Denhan Rumney	871-011442-US/30021028 US	2921
22878 7590 04/11/2008 AGILENT TECHNOLOGIES INC. INTELLECTUAL PROPERTY ADMINISTRATION,LEGAL DEPT. MS BLDG. E P.O. BOX 7599 LOVELAND, CO 80537				
EXAMINER HUANG, DAVID S				
ART UNIT 2611		PAPER NUMBER		
NOTIFICATION DATE 04/11/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

Office Action Summary

Application No.

10/668,547

Applicant(s)

RUMNEY, MORAY DENHAN

Examiner

DAVID HUANG

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 5-7 and 10-12 is/are allowed.
- 6) ☒ Claim(s) 2-4, 9 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, with respect to the drawings have been fully considered and are persuasive. The objection to the drawings has been withdrawn.
2. Applicant's arguments, with respect to the specification have been fully considered and are persuasive. The objection to the specification has been withdrawn.
3. Applicant's arguments, with respect to claim 7 have been fully considered and are persuasive. The 35 U.S.C 101 rejection of claim 7 has been withdrawn.
4. Applicant's arguments, with respect to claims 1, 9-13 have been fully considered and are persuasive. The 35 USC 103(a) rejection of claims 1, and 9-13 has been withdrawn.
5. The indicated allowability of claims 2-4 is withdrawn in view of the newly discovered reference(s) to Wiebke et al. (US 2001/0008542) and Wiberg et al. (US 2002/0172264).
Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 3 is rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

Regarding **claim 3**, it is understood that the "plurality of signaling codes" are the same as the "at least three signaling codes" recited in claim 2, line 4. Claim 2 also specifies that the "another signaling code" is of order (n-x) and of length $2^{(n-x)}$ and that the plurality of signaling codes occupy the same code space as the "another signaling code". Claim 3 recites, "the

plurality of signaling codes are of order $(n-x+1)$ " and thus, are inherently of length $2^{(n-x+1)}$.

However, it is understood in the art that there can only be two orthogonal signaling codes of order $(n-x+1)$ that would occupy the same code space as "another signaling code" of order $(n-x)$ (Wiebke et al., see Fig. 2). Therefore, it would be impossible for the "plurality of signaling codes" to comprise "at least three signaling codes," and the invention of claim 3 is inoperative.

Claims 9 and 13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claim 9**, the claimed "signaling code domain" is understood to be a set of signaling codes, and therefore, is non-statutory (i.e. not a process, machine, manufacture, or composition of matter).

Regarding **claim 13**, the claimed "use of a vector product... to predict a signaling code corresponding to a code spur" is non-statutory since "a use" is not a process, machine, manufacture, or composition of matter.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claim 3** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite since it is unclear how the plurality of signaling codes can simultaneously be members of a further set of signaling codes of order $(n-x+1)$ and also comprise "at least three signaling codes." (See 35 USC 101 rejection above). For examination

on the merits, the claim will be interpreted such that the plurality of signaling codes are of an order greater than $(n-x+1)$, such that there are sufficient signaling codes occupying the same code space as the "another" code of order $(n-x)$ of claim 2.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Braithwaite (cited in IDS) in view of Gentzler (US 6,191,652) and Wiebke (US 2001/0008542).

Regarding **claim 2**, Braithwaite disclose a method of predicting a signalling code from an n^{th} order set of orthogonal signalling codes (Walsh codes, page 2161, column 1) of length 2^n for a communications system, the signalling code corresponding to a code spur, comprising the steps of:

selecting at least three signalling codes from the n^{th} order set of orthogonal signalling codes within a code space (page 2621, column 1; selected at least three codes is implicit since Braithwaite suggests the Walsh code intermodulation can be extended to higher order products); and

performing an operation on the at least three signalling codes, the operation corresponding to a vector product of the at least three signalling codes, when the at least three signalling codes are expressed in a bipolar form (binary form), to predict the signalling code

corresponding to the code spur (page 2621, column 1; higher order products using exclusive-or of the corresponding set of Walsh codes).

However, Braithwaite fails to expressly disclose (i) selecting an odd number of at least three signalling codes, (ii) wherein the at least three signalling codes comprise a plurality of signalling codes, the method further comprising: generating the plurality of signalling codes as a substitute for another signalling code, the another signalling code occupying a portion of the code space and being a member of an $(n-x)^{\text{th}}$ set of orthogonal signalling codes of length $2^{(n-x)}$, where x is less than n and the plurality of signalling codes are orthogonal with each other and occupy substantially all of the portion of the code space.

With respect to item (i), it is well known in the art that odd order intermodulation products are the most troublesome since they fall close to the signals intended to be amplified as is evidenced by Gentzler (column 2, lines 60-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify choosing an odd number of signalling codes in the method taught by Braithwaite since an odd number of codes would calculate an odd ordered intermodulation which is well known in the art to be the most troublesome and would be advantageous to avoid.

With respect to item (ii), Wiebke et al. teach OVSF codes are defined using a code tree (Fig. 2), and that each level in the code tree defines a channelization code of length SF, corresponding to a spreading factor of SF. A code can be used by a mobile station if and only if no other code on the path from the specific code is already used by the same mobile station in a cell. This means that the number of available channelization codes is not fixed by depends on the spreading factor of each physical channel (page 2, [0032]-[0033], Fig. 2). It is implicit in the

teaching of Wiebke et al. that selecting a higher spreading factor (order) increases the number of available codes to accommodate more users in the case of code shortage (page 3, [0035]; page 4, [0048]; Fig. 5; see also page 5, [0054]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a code of a lower order with a plurality of codes of a higher order that occupy the same code space since this increases the number of users a network can support, and adds flexibility in adjusting to different data rates associated with different users.

Regarding **claim 3**, Braithwaite and Gentzler disclose everything claimed as applied to claim 2 above, but fail to expressly disclose the plurality of signalling codes are members of a further set of signalling codes of order $(n-x+1)$.

Wiebke et al. teaches switching the spreading factor from 16 to 32 results in additional SF 32 channelization codes are made available for use in a cell (page 3, [0035]). It is implicit, that an increase in the spreading factor from SF 2 to SF 32 would provide an 8-fold increase in available signalling codes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify codes of order greater than $(n-x+1)$ since this increases the number of users a network can support.

11. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Braithwaite (cited in IDS) in view of Gentzler (US 6,191,652) and Wiebke (US 2001/0008542) as applied to claim 3 above, and further in view of Wiberg et al. (US 2002/0172264).

Regarding **claim 4**, Braithwaite, Gentzler and Wiebke teach everything claimed as applied to claim 3 above, but fail to expressly disclose each of the plurality of signalling codes

comprises the another signalling code or a bit inverse thereof concatenated with the another signalling code or the bit inverse thereof, and the each of the plurality of signalling codes constituting an orthogonal signalling code with respect to other signalling codes of the plurality of signalling codes.

Nevertheless, the pattern of generating the signalling codes described in claim 4 matches the pattern of the OVFS codes depicted in the code tree in Fig. 2 of Wiebke (page 2, [0032]; Fig. 2).

Wiberg et al. discloses a virtually identical OVFS code tree (page 4), and specifies how the code tree is obtained (page 5, [0034]-[0040]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate the plurality of signalling codes as claimed, since Wiebke and Wiberg et al. disclose the same code tree, and it would have been obvious to one of ordinary skill in the art to employ the same steps to generate the identical codes in the tree.

Allowable Subject Matter

12. **Claims 1, 5-7, and 10-12** are allowed.
13. The following is an examiner's statement of reasons for allowance: The present invention identifies signalling codes from the n th order set of orthogonal signalling codes of length 2^n having a lower occurrence of code spurs coinciding with active signalling codes than signalling codes amongst the n^{th} order set of orthogonal codes. The closest prior art, Braithwaite (cited in IDS) and Gentzler (US 6,191,652), fail to disclose this limitation. This limitation distinguishes the claims over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID HUANG whose telephone number is (571)270-1798. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSH/dsh
April 2, 2008
/David Huang/
Examiner, Art Unit 2611 /Shuwang Liu/ Supervisory Patent Examiner, Art Unit 2611

